of the best and most rapid operators and the lowest observed time or 'unit time' becomes a *standard of performance* for that operation . . ., this method of approaching the problem is a great advance over the old empirical methods and any rate setter will profit even by its limited use."

These statements are unfortunate and will mislead some readers already well supplied with misinformation on scientific management. "The lowest observed time" is never taken by those who practice this art as the "standard of performance" by which to set times for the future. What is obtained from the readings is the representative time, usually the average or the median; and to that is added an allowance for rest. Moreover, the reviewer must take decided exception to the expression of the all too prevalent notion that "any rate setter" will profit even by a "limited use" of the methods of time study. Time study is an edged tool that "any rate setter" cannot play with to advantage. It is of such a nature in itself and must be preceded and followed up with such changes in the customary ways of doing things that its "limited use" amounts to no use at all. It must be used completely, with full understanding and willingness to take pains and incur expense, or only disappointment will result.

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The Mathematical Theory of Investment. By ERNEST BROWN SKINNER. (Boston: Ginn and Company. 1913. Pp. ix, 245. $2.25.)

The material in this book is, to a considerable extent, what the Germans call "Politische Arithmetik." The work is based on lectures given to students in the course in commerce in the University of Wisconsin. The first four chapters are in the nature of an introduction, as they are devoted to a few topics that are usually included in a course in college algebra. Mathematical principles and processes, to be used later in the book, are developed in part I; but the student would have better preparation for the mathematical theory of investment by taking the course in college algebra than should be expected from the study of these four chapters which cover only a small part of the usual algebra course. Some readers of the book will doubtless ask why this pure mathematical material is introduced. The answer seems clear. It is very

necessary if students who have taken no mathematics beyond that required for entrance to college are admitted to the course. In short, part I does not treat the mathematical theory of investment, but is part of the preparation for reading such a theory.

In part II, devoted to interest and annuities, are chapters on amortization, sinking funds and depreciation, and building and loan associations, which give interesting applications that will be found useful in teaching. The theory of probability and its application to financial problems are treated in part III. This includes, in very brief outline, some elementary facts and formulas of annuities and life insurance. The usefulness of the book would have been increased, I think, if more space had been given to insurance; and surely the vast literature and the general character of life insurance mathematics would seem to justify this.

Part IV contains some monetary tables, and the American experience table of mortality. These are to be used in exercises and problems given to illustrate the theory and to furnish the student some practice in carrying theoretical results into numerical effect.

The reviewer welcomes this book, as he has given for a number of years, in the form of lectures, substantially the subject-matter, omitting part I and including more of insurance. At least some and perhaps many teachers interested in business education feel that the student taking a course in commerce should devote some time to a study of quantitatively precise business operations, somewhat actuarial in character, rather than to give all his time to a consideration of the less precise forces involved in our commercial life. If such teachers are correct in their view, this book will be of assistance in making a step in the right direction.

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Die Berücksichtigung der Wertverminderungen des stehenden Kapitals in den Jahresbilanzen der Erwerbswirtschaften. By EMIL FAES. Zeitschrift für die gesamte Staatswissenschaft, Ergänzungsheft XLVI. (Tübingen: H. Laupp. 1913. Pp. 132. 4 M.)

After general comment on the nature and object of balance sheets, the author discusses the principles of valuation at which assets should appear, namely, cost, individual or subjective value, and selling or break-up value. He adopts the cost of reproduction as the proper initial value on the books. The discussion is nar-